Teaching 2.0:
When the Student is Ready,
Will the Teacher Disappear?

Rosemary D. Quilling
Craig N. Blewett

> If we teach today's students as we taught yesterday's, we rob them of tomorrow (John Dewey).

Abstract
A Buddhist proverb proclaims, *When the student is ready, the teacher will appear*. This paper explores teaching practice, the current generation of student and the use of technology, as the elements at a teacher's disposal in the process of enhancing the learning experience. It explores the theoretical foundation underpinning these elements and postulates that their interactions over time can be used to illustrate why they may not have been aligned in the past. However; with the current context of teaching practice, students and technology, a synergistic relationship can be formed which can potentially optimise the learning experience. The underlying assumption though is that teachers would need to implement this practically in their classrooms for the synergy to be experienced: The subtle implication alluded to in the title is that perhaps teachers will become the architects of their own demise if they do not begin to engage their students using some of the precepts discussed. A study of 13 students in a Computer Mediated Communication (CMC) Honours module is used to pilot these ideas. Feedback from an initial 2 week activity is explored, and shows promising results.

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Introduction

Fundamentally the role players of the teacher, student, course material and platforms for delivery need to be optimised to achieve the best learning results. This paper theoretically explores ways of achieving this and shows that our current context of social computing is allowing for an alignment of these role players in a way which has not been possible in the past.

Parameswaran and Whinston (2007, p763) challenge Information Systems (IS) researchers to take the lead in social computing research: 'Social computing will impact numerous academic disciplines due to its pervasive influence and is thus a rich area for research; an area in which it is important for information systems researchers to take the lead'. This paper explores a possible role for social computing in the educational context and pilots the approach within a fourth year Honours class.

Problem Statement, Objectives and Research Questions

Bloom's cognitive objective framework is a well accepted framework whereby a course (including the content and assessment) can be assessed in terms of its level of student cognitive engagement (Carneson *et al.*,n.d). Typically, higher level tertiary education courses should see students more engaged in synthesis and evaluation learning rather than lower cognitive levels of knowledge and comprehension.

In order to achieve higher levels of student cognition and richer student engagement in the learning process, a variety of pedagogical learning theories have been postulated. These range from Instructivism to Constructivism. Instructivism is characterized by an instructor providing some form of formal instruction to the class, where the student plays a passive role (Gulati, 2004). Constructivism, on the other hand seeks to place the student at the centre of the learning activity where they construct the knowledge themselves (Gulati, 2004). However, the reality is that educators

find it difficult to incorporate the desired outcome of higher cognition in senior years, into teaching practice in a substantive fashion.

One of the key challenges is that adopting new paradigms is often initially accompanied by an increase in the workload of the staff. Furthermore higher education organisational structures have not matured to a point where they can accommodate this form of interaction. In South Africa, learning spaces are still dominated by formal lecture halls and areas of 'quiet contemplation' such as libraries and study halls.

Insights from generational theory show that academic faculty and management are likely to belong to the (Baby) Boomer generation (born 1943-1963) or generation X (1963- early 1980s) with distinctly different approaches to life to their current students, Generation Y (born 1981-1993). Generation Y are socially and community oriented, with the ability to spread their focus by harnessing a variety of technology platforms. Their learning preferences include visual information, working in teams, experiential activities and use of technology. Their strengths include multitasking and collaboration (Oblinger, 2003, Weiler, 2005). Thus the current generation of students is faced with an educational institution whose structures and faculty may be in conflict with the way they can best, and perhaps most want to, learn.

At the same time technology and business models relating to computer mediated communication (CMC) is dominated by what is called Web 2.0 (O'Reilly, 2005). These technologies seek to empower the individual user(s), as the creators and publishers of content, while also allowing them to draw the information to themselves. Communities and networks are socially constructed with greater emphasis being placed on sharing; working together and communal resources (open source platforms and developments). This in contrast to earlier web developments which saw information 'published' for use or personal need (O'Reilly, 2005).

The convergence of a generation characterized by social sharing behaviours, together with supporting CMC technologies, is producing interesting opportunities and challenges for long-standing formal learning institutions. Traditionally three elements needed to be aligned for a successful learning experience – students, the learning philosophy and the teacher. This may or may not have been supported by the fourth element, technology. The technology was primarily seen as a support or optional

enhancement to the learning encounter. For the first time in educational history the three elements: an accepted learning theory (social constructivism), generationally aligned students (Generation Y), and supporting technology (Web 2.0) are aligned. We now stand at a point where a new question is being raised – Has the convergence of willing students, an appropriate learning philosophy and an aligned supporting technology made the teacher superfluous?

Ultimately motivation is the 'primary factor in teaching and learning' (Reeves, 1995, p224; Malone, 1984). Motivation is the glue that binds teacher, student, philosophy and technology into a successful learning experience. This paper explores the potential, and impact, of using current Web 2.0 technologies to support the practices suggested by pedagogical theories. This paper is thus exploring *the effect on student motivation, of aligning current technologies with appropriate learning techniques.*

Literature Survey

The area of focus for this paper is the intersection that falls between how the real world operates and our theoretical understanding of how best to facilitate the learning process. As such our focus turns to academic practice and how we bring these two well documented and researched realities of technological innovation and theoretical pedagogy, together in a concrete and meaningful way.

Theories of knowledge and learning as participative and social experiences are already documented. The basic precepts required for this discussion have already been highlighted: Learning is defined as 'the act, process or experience of gaining knowledge or skill' (Barnhart & Barnhart, 1990); The style of teaching has been shown to significantly impact learning (Webster & Hackley, 1997); Cook and Cook's (1998) Student Retention of Learning Table (supplied here as text) highlights that 'Students retain…10% of what they read, 26% of what they hear, 30% of what they see, 50% of what they see and hear, 70% of what they discuss with others, 80% of personal experience, 90% of what they say as they do it, 95% of what they teach'. It is the doing and recreating that assists dramatically in retention of learning. These figures may begin to explain why students enjoy TV and computer based activities, because they are visual and auditory (Weiler,

2005). Educationalists have over the years postulated a wide range of educational pedagogies. The two points of reference against which a variety of other theories can be positioned are Instructivism on the one side and Constructivism on the other.

Instructivism

Instructivism is the classical approach used in the classroom and is based on an objectivist theory of knowledge (Reeves, 2008). It is characterized by an instructor providing some form of formal instruction to the class. This method of education places a high level of control in the hands of the instructor, with the learners being passive (Galuti,2004). One of the main issues is that students tend to use rote learning and then simply regurgitate the information in tests and exams (C-SAP, 2008).

Constructivism

The other end of the scale is characterized by the constructivism paradigm: Students are placed at the centre of the learning activity where they construct the knowledge themselves (Gulati, 2004). Constructivism is based on the premise that we all construct our own perspective of the world, through individual experiences and schema. Constructivism involves the use of more active forms of classroom interaction that engage the student in the process of learning (Gulati, 2004). Further studies highlight the role of social constructivism. Light (2001), discussed in Brown and Adler (2008), found that one of the strongest indicators of students' success in higher education is their ability to form or participate in small study groups. This was found to be more important than details of their instructors teaching styles.

Factors Affecting Learning

Not only is the pedagogy important but so too is an understanding of many of the other factors that can affect learning. Reeves (1995) introduced a number of pedagogical dimensions that he felt affected interactive learning. In more recent literature Reeves (2008) expanded the number of pedagogical dimensions to 14. The pedagogical dimensions are as follows: (1) epistemology, (2) pedagogical philosophy, (3) underlying psychology, (4) goal orientation, (5) experiential value, (6) teacher role, (7) program

flexibility, (8) value of errors, (9) motivation, (10) accommodation of individual differences, (11) learner control, (12) user activity, (13) cooperative learning, and (14) cultural sensitivity.

Many of the factors identified by Reeves (2008) are ultimately under the control of the developer of the learning programme, with few reflecting the ability of the learner to impact their learning experience e.g. student motivation. It is accepted that student motivation has a positive effect on learning. Motivation affects retention, and is therefore critical to learning success (Kumarawadu, 2004, Weiler, 2005). 'If students are intrinsically motivated to learn something, they may spend more time and effort learning, feel better about what they learn, and use it more in the future'(Malone, 1981).

Active Learning

While there is no motivational 'magic bullet', Felder and Silverman (1988) in their seminal paper on learning styles state that student motivation can be enhanced through active learning. The more traditional (Instructivist paradigm) methods of learning tend to be highly passive from the student's perspective (C-SAP, 2008). It is also recognized how little learning actually takes place in lectures (Felder & Brent, 2003). Active learning requires that students be more than simply alert and listening, but also requires them 'to do things and think about what they are doing' (University of Northern Iowa, 1998). Therefore in order to address the challenge of engaging students at higher levels of cognition, it becomes clear that it is necessary to adopt not only a pedagogical philosophy that is appropriate but also workable active learning techniques, that will enhance the student's learning experience and increase the student's motivation to learn. This changes the focus: 'Instead of fonts of information, the lecturers can become sites at which students gather to hear advice on what to do' (Brent, 1996). Doug Brent in his keynote address (1996) puts this most succinctly, 'Learning occurs at the point where students are in a little over their heads, where conceptual gaps open and create problems that can only be solved by applying new knowledge and new thinking which must be constructed for the occasion'.

Generation Y students 'don't see computers as technology' because they have never known a world without them: computers are just a part of life (Weiler, 2005). Generation Y students experience and view technology

as such an integrated part of social and educational life, it is no longer a 'platform' (Brent, 1996); it is life.

It is this point of convergence that is altering the educational landscape in a way never seen before. The time Brent (1996) spoke about has now arrived. When information technology is exploited, not only for its ability to present information, but its *potential to connect people*, then emancipation of learning will take place.

Our Students: The 'Next' Generation

Generation Y students (the current generation of students in tertiary institutions) are the millennial, NET, MySpace or Next generation. Access to information and data processing power has given children a different way of interacting with information compared with previous generations (Jones, 2002, Weiler, 2005).

> *They prefer their information to arrive in 'interactive' forms, and are especially drawn to Internet information channels. They have a much higher 'information overload' threshold, but have been forced to make drastic changes in how they process and learn information. This has been largely misunderstood by older generations who attempt to force them into the older methods of linear processing* (Codrington 1999: webpage 2 of 7).

The generational characteristics are still to be fully developed for generation Y but clear trends are already emerging indicating that community matters most. We can see current students are collectivist and community focused; they multitask, process information interactively and expect change and variety (Codrington, 1999, Reynolds, 2005).

In addition we need to consider the profile of the faculty who are expected to teach them: By and large the faculty consist of (Baby) Boomers and generation Xers who are individualistic, have a weak sense of community and use linear methods of processing. Clear contradictions are evident.

This highlights the fact that the students entering our educational systems demonstrate those characteristics that are used as the cornerstones for the development of active learning techniques. They are community

oriented and thus have greater tendencies towards social contexts for all experience; including education. For these students the creation of knowledge is a natural, social, active process (Weiler, 2005).

We are not trying to suggest this is the only valid approach to fostering and encouraging learning but rather suggest that while classes will always consist of learners exhibiting a variety of preferred learning styles (Felder, 1998) we are likely to see an increase in the number of students who prefer a variety of visual media that can be engaged using a constructivist approach.

Social Computing

A confluence of the elements of educational theory and the nature of the learners entering the educational system is clear. The third element that has now also converged is the supporting (or integrated) technologies that are now available. Most notable among these are developments within *Social Computing*. This is a term first coined in the 1990s by Tom Mandel (2008) and defined in a number of ways (Forrester (2006), IBM, (2008) and PA Consulting, (2008)). Central to these definitions are the ideas of social computing as social interaction through information systems: not just as a platform or application but as a system where the information system is used as a 'place' for interaction as well as a 'space' for information storage, manipulation and use. Again this reinforces the concept that social computing is not about a platform (as previous technologies have been viewed) but a space.

These tools include both the hardware and the software which have become associated with the Web 2.0 phenomenon (Alexander, 2006). Examples include social networks, business networks, wikis, blogs, virtual worlds, social bookmarking and photo/ video sharing sites. The McKinsey Quarterly report (December 2007) highlights four of the top eight technology trends to watch, being those related to 'Managing relationships'. The top two are directly related to Web 2.0 functionality.

The problem statement introduced at the outset deals with *the effect on student motivation, of aligning current technologies with appropriate learning techniques:* By clarifying the synergies necessary to enhance student motivation it is possible to highlight particular characteristics in the learning experience which we can manipulate so that they are likely to appeal to our students. These include (1) providing learner-centred control, (2)

social interaction in the engagement, and (3) using rich media and diverse information sources. These characteristics are common to social constructivist learning theories, next generation students and the social computing aspects of Web 2.0 technologies. The terms we require to fully articulate our research question are now clear:

> *What is the effect on Generation-Y student motivation, of aligning social computing with social constructivist learning techniques?*

The methodology will highlight the context for the study; in particular the module in which the study takes place and the learning opportunities provided. In addition the theory of motivation, and related research instrument, which we use to ground our discussion and obtain student feedback will be introduced. The social network used to facilitate the module forms both a part of the learning experience and a mechanism for feedback from students and will thus also be included in the following section.

Research Methodology

This study deals with an elective module Computer Mediated Communication (CMC), formally ISTN730 and ISTN430, of the 2008 Information Systems & Technology Honours (4th year) full-time programme at the University of KwaZulu-Natal, Westville Campus, Durban, South Africa. Of the 17 registered honours students, 13 students have elected this module. The purpose of this module is to provide students with the theoretical and practical knowledge to use Web 2.0 technologies and to evaluate and develop Web 2.0 business models as applied to business, education and entertainment.

This paper focuses on the activities used to introduce students to the plethora of issues that fall under the umbrella of CMC. While students are given broad definitions of the field, the area of study for the duration of this offering is further reduced to those technologies broadly seen as Web 2.0 applications. The introductory topic covers the first 2 weeks of the module. This includes 2 formal sessions (1 per week, named Session 1.0 and Session 2.0), a self-study activity undertaken between the 2 formal sessions (Session 1.5), and an assessment (assessment 1.0) submitted roughly 3 weeks later. Feedback is obtained via a questionnaire, as well as a review of individual

blogging, and general participation on the module's supporting social network site, University 2.0.

Learning Activities

The focus of CMC is not only on the content covered, but also to teach students how to learn about the ever-changing landscape of CMC.

Session 1.0, an instructivist-style lecture, provided students' information on the basic module, its objectives, channels of delivery, anticipated assessment structures and expected ethos. The objective of this session was to capture their attention and stimulate their interest in terms of anticipated learning, and the introduction of unconventional[1] channels of delivery and modes of assessment.

Session 1.5 was the self-study period between Session 1 and Session 2. This 'session' adopted a scaffolded learning approach (Rose et al., 2003) which is a supportive approach to reading and writing. The students were required to be self-motivated in their assimilation of the plethora of literature and other material (podcasts, images, audiophiles) on Web 2.0 and CMC.

Session 2.0 used the extrinsic motivation of a recorded panel discussion in a formal TV studio[2] to encourage the students to engage thoroughly with the material. The panel discussion session consisted of four 15 minute panel discussions. The idea of using a formal studio environment for the panel discussions helped provide a powerful motivation to the students to actively engage their reading material. Furthermore the objective was to try and improve student retention of this key material (Cook and Cook, 1998). Furthermore exposure to, and understanding of, professional environments; presentation, writing and interpersonal skills are key discriminators in the current IS&T marketplace (Brown and Adler, 2008: p19).

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[1] We use this term to differentiate from the normal mode of delivery that students are most commonly familiar with as opposed to implying uniqueness. The instructivist approach is the most common within the School of IS&T (UKZN).

[2] These services supplied by the Audio Visual Centre, Westville Campus of the University of KwaZulu-Natal, which is also used for commercial recordings.

Students were required to complete a post-session assessment where they critiqued each of the panel discussions. This assessment is not reviewed here but will be reviewed in a subsequent paper.

The impact of these sessions together with the supporting Social Learning Network (discussed below), on student motivation, need to be assessed.

Social Learning Network Analysis

A supporting social learning network called University 2.0 was setup. The purpose of this was to allow students to engage their learning material in a manner that is both compatible with their generational characteristics and is engaging. The University 2.0 site provided a variety of tools including podcasts, blogs, groups etc. Each student was also able to set up their own 'space' where their personal tools, comments and interactions could be stored as a subset of the University 2.0 network.

In order to supplement the survey data obtained, the student use of the blogging facility and interactions on the University 2.0 social learning network site will be analysed. This analysis will attempt to gauge student motivation as expressed in their use and interaction with the University 2.0 site.

Measuring Motivation

Keller introduced the ARCS Model to measure the effectiveness of educational material in motivating students in 1987 (Margueratt, 2007; Weiler, 2005). The ARCS model suggests that in order to motivate a student four specific conditions must be met namely, Attention, Relevance, Confidence and Satisfaction. These can be detailed as follows:

- Attention deals with capturing the interest of students and stimulating their curiosity to learn.
- Relevance deals with meeting the personal needs/goals of the student to affect a positive attitude.
- Confidence deals with helping students to believe or feel that they will succeed and control their success.

- Satisfaction deals with reinforcing accomplishment with rewards (internal and external)

In order to determine the level of motivation using the ARCS model Keller developed the Instructional Materials Motivational Survey (IMMS). This instrument is used to obtain student feedback on the Learning Activities (Sessions 1.0, 1.5 and 2.0.) and measure their level of motivation within this part of the course.

Gabrielle (2003) analysed commentary in terms of the ARCS characteristics by annotating and categorizing student comments. Each of these comments is known as a mention, or mention sequence, depending on their length (Calloway & Ariav, 1991). This qualitative technique, referred to as coding (Miles & Huberman, 1994; Strauss & Corbin, 1990; Urquhart, 2000), is used to measure student motivation in their interaction with, and use of, the University 2.0 Social Learning Network.

Data Collection

The ARCS model was further modified in 1993, and it is this version of the IMMS questionnaire that was used for data collection. The questionnaire consists of 36 questions (Margueratt, 2007). Questions were uploaded to the Survey Monkey website (March 2008) to allow for automatic data capture (http://www.surveymonkey.com). The link for the questionnaire was mailed to students and they were given 48 hours to complete the survey. In total, 11 out of the 13 class members responded. As the data set is small only descriptive statistics are available and results are not generalisable.

This study uses triangulation, or a mixed-mode methodology (Gabrielle, 2003). The IMMS survey presents descriptive quantitative results while the analysis of the students' social network entries is qualitative, and subjective.

Results and Data Analysis

Data analysis focusing on the results of the ARCS survey and commentary on University 2.0 will be directed towards the identified synergistic elements of social computing and social constructivism and their impact on Generation Y student motivation in a learning environment.

Social Constructivist Approach

As was discussed earlier the course was delivered using a highly engaging social constructivist approach. Students were expected to be highly involved in the course from the very beginning. In order to measure the impact this approach had on student motivation, the IMMS survey was conducted. The following is an analysis of the results in terms of Attention, Confidence, Relevance and Satisfaction.

Attention

Attention is concerned with the aspects of the course that arouse and sustain the students' curiosity and interest. Various attention techniques were used and the students were required to respond to statements such as 'The use of videos and audio was very good at getting my attention', 'The way the learning material and learning experiences are arranged helped keep my attention.' etc. Overall, 87% of the students felt that it was Mostly True (55%) or Very True (32%) that the course held their attention.

One of the biggest challenges with a course of this nature is the volume of new material that students are required to read. Pre-reading is vital if students are to engage in the course in a meaningful way, however it is often not done because it is perceived as boring. As such it is worth noting that in response to the statement—*The variety of readings, videos, audio clips, etc., helped keep my attention on the material*. 100% of the respondents said that it was Very True (45%) or Mostly True (55%). Student attention was maintained through all of the reading material by using a rich combination of media, including audio, video and text.

Relevance

The second aspect of motivation is Relevance, and this is concerned with strategies that have been implemented to help link the course content to the students' needs, interests and motives. Statements such as the following were used to determine relevance; *The videos and other AV material helped show how the issues are used and important to people* and *I could relate the content of the material to things I have seen, done, or thought about in my own life*. Overall, 80% of the students found the material to be relevant to them (45% Very True + 35% Mostly True).

While this is slightly lower that the score for Attention, it is still high, especially considering that relevance of material to students is often one of the most difficult things to successfully communicate.

Session 2.0 of the course (the Panel discussion) was seen as the most powerful way of making the material relevant to the students. Rather than simply having to learn the material, students were now able to role-play talking about the material they were learning, as if it really was a real part of their lives. As such the response to the question *The content of the material and the experience of the Panel Discussion will be useful to me* saw 100% of the students answering Very True (82%) and Mostly true (18%).

Confidence

The third aspect of motivation is confidence. This concerns the strategies that are implemented to help the students develop a positive expectation for success in the course. Statements such as the following were used to measure confidence. *As I worked through the material, I was confident that I could learn the content*, and *after working through the CMC learning material, I was confident that I would perform well on the Panel Discussion.* Overall, 68% of the students answered Very True (38%) and Mostly True (30%) to being confident about their learning experience.

This is lower than the percentages for Attention and Relevance, but again this is not unexpected. A course of this nature deals with emerging technologies and trends and thus the concepts and theory appear almost 'fluid' in nature to students who are most familiar with highly defined topic areas within the discipline. In addition, the huge initial reading load and expectation of performance on the panel discussion is somewhat intimidating in nature, no matter one's level of knowledge in the area. However with nearly 70% showing high confidence the techniques show that it is possible to imbue confidence despite mitigating factors.

One of the areas where confidence was at its lowest was at the release of the Panel Discussion (Session 1.5). In response to the question: *When I first read CMC 1.5 (the intro to Panel Discussion), I had the impression that it would be easy for me,* 73% felt that this was Not True (55%) or only Slightly True (18%). However in response to the statement: *After working through the CMC learning material, I was confident that I would perform well on the Panel Discussion* 63% felt it was Very True (18%) or Mostly

True (45%). This showed that, as was expected, the initial task seemed daunting, but their confidence increased as they engaged the material.

Satisfaction

The final element of motivation is satisfaction. This is very important as it helps to reinforce the motivation that is developed through the other elements. Essentially satisfaction is to do with strategies that provide extrinsic and intrinsic reinforcement for effort (Keller, 1983). Statements such as the following were used to measure Satisfaction; *Completing the Panel Discussion experience gave me a satisfying feeling of accomplishment* and: *The feedback after the Panel Discussion and other comments helped me feel rewarded for my effort.*

Overall, 77% of the students answered that it was Very True (50%) or Mostly True (27%) that they felt satisfied with their learning experience.
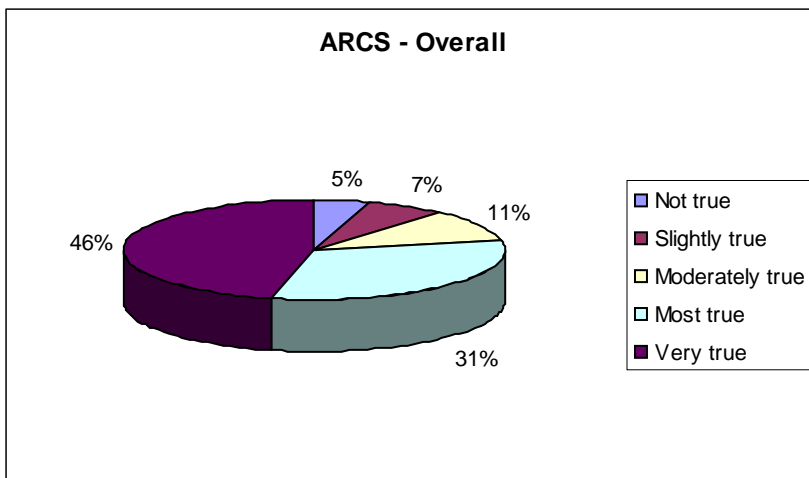
Figure 1: *ARCS Overall Measure of Motivation*

It is interesting to note that despite the learning material being volumonous, and the students being under pressure to know and understand it, the following results were recorded for—*I really enjoyed working through the CMC 1.5 learning material* – 82% said this was Very True (36%) or Mostly True (46%). The feeling of extrinsic motivation received from fellow

students and staff is also demonstrated in the results for the statement—*The feedback after the Panel Discussion and other comments helped me feel rewarded for my effort,* where 82% said this was Very True (27%) or Mostly True (55%).

Overall motivation in terms of ARCS shows (see Figure 1) that 77% of the class responded to the various elements of motivation either that it was Very True (46%) or Mostly True (31%).

Adopting an active learning approach combined with supporting rich media has enabled the students to successfully navigate the first part of the course while maintaining high levels of motivation. While initial reading loads and complexity of material had the students somewhat apprehensive, as is often the case in higher level courses, it is apparent that an appropriately aligned pedagogical course can be used to engender high student motivation.

Generationally Aligned Technology

The second part that is important is the support of the technology in the course. This course was supported by a Social Learning Network. The Social Learning Network was implemented, to not only fit in with the Generation Y social behaviour, but also to try and further develop the key aspects of motivation in the course experience. Again attention is given to the ARCS model to both show how motivational aspects were designed into the Social Learning Network by the course designers and how the students responded to these key elements as shown through their use of the Social Learning Network.

In order to implement the factors of the ARCS motivation into the website, attention was given to trying to ensure that all four aspects of motivation were addressed.

The welcome blog post indicates this (see Figure 2 below). Attention was addressed by welcoming them—*Greetings and felicitations Honours CMC 2008.*

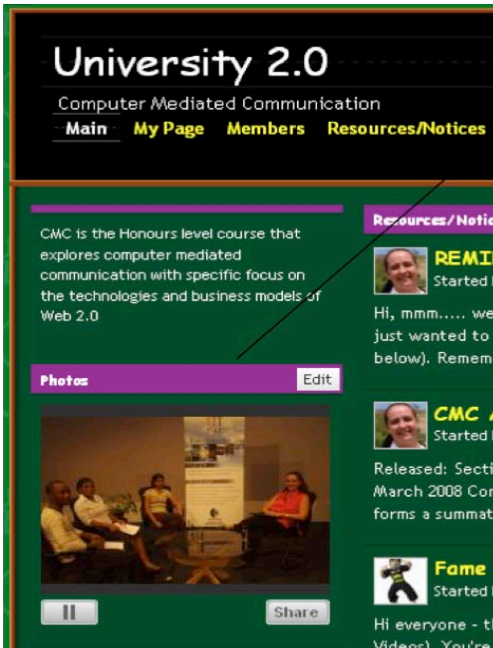**Figure 2:** *Welcome Blog post highlighting motivation elements*

Relevance was addressed through statements in the opening blog post such as *Each of you will have your own Page where you can upload content etc.* Here they can see that there is going to be something personal to each of them, which improves their appreciation of relevance. Also the instruction also reinforces relevance by showing that their blog posts are linked to their learning experience—*The blog post must either be something that you have*

learned during the week or else something interesting, but related to the material covered in CMC that you have come across.

Confidence at this early stage is very important. While there is a lot that is expected from the students in the various parts of the course they are encouraged to try; which builds their confidence through statements such as—*The posting need not be long.*

Finally Satisfaction is vital in developing and sustaining motivation in a course. Statements such as *Have fun ... and enjoy your learning experience* ... help improve the student's enjoyment of the course.

The importance of ensuring that all aspects of motivation are continually addressed is continued beyond the initial blog. It is important that Attention, Relevance, Confidence and Satisfaction are built into the entire web experience. Students are expected to spend a significant part of the course time in this social learning network. As such it is important to try and make sure that the key elements of motivation are continually addressed. This is demonstrated in Figure 3 below. This is one example of addressing motivation through the layout and postings of the social learning network.

Figure 3: Addressing motivation through the layout and posting

Besides simply considering motivation in terms of the design and postings as implemented by the course developers, it is also worthwhile considering the students' comments.

All of the students on signing up for the social learning network were required to provide an answer to the question *What one key thing are you hoping to learn through this CMC course?* An analysis of their answers provides an interesting insight into the motivation 'request' of the students. Below is an analysis of some of their answers as organized in terms of Attention, Relevance, Confidence and Satisfaction.

Attention
-   *CMC is cool and exciting*

Relevance
-   *Importance of CMC in the corporate and social world and ways in which i can use CMC to my advantage.*
-   *How virtual environments are changing the social and business worlds in many ways via Internet to mobile technology*
-   *i hope to learn how to improve in creating more exciting ways of communication between people via computers/with the aid of computers*
-   *The wonders of Web 2.0*

- *The impact of cmc in today's world*
- *How cmc has helped change the way in which we communicate and to be more well equipped in the real (working environment)*

Satistfaction

- *CMC is cool and exciting, who wants to do a boring module if we can do CMC. I'm sure you know what I mean by boring module*
- *…and to have fun while doing and learning all these in CMC*
- *To learn through collaboration whilst having fun*

As this question was put to the students at the start of the course it was not expected to have any comments that related to Confidence. However it is interesting to see that there are many comments relating to relevance and satisfaction. Almost all of the students made comments relating to their hope that the material would be relevant to them.

This highlights how important this aspect of motivation is to students' learning. Besides Relevance the students also exhibit the need for Satisfaction in their learning experience.

Analysis of University 2.0 Usage

The final part of the analysis and impact on student motivation is based on an analysis of the students' usage of the University 2.0 social learning network. By analyzing the students' usage and interaction with the site a valuable insight is gained into the students levels of motivation in the course.

The University 2.0 blog facility enabled the students to post blogs on any item that was relevant to the CMC learning experience. Students were encouraged to post interesting articles and as a result over the period of the first part of the course (5 weeks) a total of 51 blog posts were made, an average of 4 per student. While this may be as a result of the marks allocated to posting relevant blogs, what is interesting is that there were 89 comments from the students on these blogs, an average of 7 comments per student. This shows that there is a high level of engagement by the students with the course material as this is time spent learning outside of the other formal learning sessions allocated to the course.

Over and above this there is a comment facility, which is there for more informal discussions regarding the course or other issues. Extensive use

was made of this over the first part of the course with 59 comments being made in this period. Again this indicates a high degree of engagement by the students in the course and related activities.

Ancillary benefits found in a social network environment relate to the 'place' aspect of social computing (as discussed earlier). We have one foreign student who is very reserved and does not participate in a face-to-face environment unless forced to do so, due to his difficulty with English. In this context he has been more active and forthcoming, including asking students why they did not '*talk on his page*'. Students were quick to respond, pointing out that they would be happy to communicate if he just started blogging so that they had something to talk about. He is now a regular participant and provides different insights for consideration for the classroom. As an example he introduced a Chinese IM facility known as QQ, which is also available in English. A discussion about its relative merits has taken place online; further enriching the class. Blogging also improves student writing, talking, and language; necessary skills as highlighted by Brown and Adler (2008).

Answers to Research Questions

This discussion began with an assertion that we now have a situation where theoretically, the accepted teaching paradigms, available technologies and general context and attitudes of the student population should be in alignment. Our concern is in determining the effect on student learning (via motivation) if we actively construct our teaching practice according to the social constructivist guidelines and channel delivery via appropriate technologies. Thus the research question is:

> *What is the effect on Generation-Y student motivation, of aligning social computing with social constructivist learning techniques?*

Our pilot study certainly shows very positive results. Overall motivation in terms of Attention, Retention, Confidence and Satisfaction shows that 77% of the class responded to the various elements of motivation either that it was Very True (46%) or Mostly True (31%). Analysis of the social learning network site, University 2.0, is also very positive showing

how critical students see the issues of relevance and satisfaction when assessing their own learning experiences.

Conclusion

The exploration of the role of teaching strategies and technologically aligned tools has shown, in a limited pilot study, that they may be a critical element in enhancing student learning, specifically for Generation Y students, and potentially equally, or even more so, for future generations.

This study will continue throughout the duration of the Honours module, for the full first semester of 2008. Other technological platforms (social computing tools) will be explored in order to test how the suggested teaching model performs in these contexts. Brown and Adler (2008, p24) suggest that 'it makes sense for colleges and universities to consider how they can leverage these new connections through the variety of social software platforms that are being established for other reasons'. How much more is this true for Information Systems and Technology faculty members who can explore this not only in terms of a teaching tool but also the content of their discipline? Failure to do so may result in the teacher being replaced by the very technologies they fail to adopt.

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Rosemary D. Quilling
School of information Systems & Technology
University of KwaZulu-Natal
Durban, South Africa
quillingr@ukzn.ac.za

Craig N. Blewett
School of information Systems & Technology
University of KwaZulu-Natal
Durban, South Africa
blewett@ukzn.ac.za